PERGAMON

Applied Radiation and Isotopes 55 (2001) XIII–XVI

Applied Radiation and Isotopes

www.elsevier.com/locate/apradiso

AUTHOR INDEX VOLUME 53

Abbas K., 179
Abt D., 57
Acharya R. N., 981
Adachi T., 87
Adams K. J., 857
Agosteo S., 765
Aksoy A., 439
Alber D., 197
Alimov A. S., 815
Al-Ohali M. A., 439
Alvarez A., 355
An J., 1005
Anderson S., 133
Andreev O. I., 825
Andreichikov B., 821
Andreytchuk N. N., 833
Aoyama M., 159
Appoloni C. R., 1011
Aragão P. H. A., 1011
Arnold D., 51, 173
Arnold M. L., 651, 657
Asikoglu M., 411
Auer M., 23
Auler I., 331

Bäcklin A., 681
Baeza A., 455
Baglan N., 381
Bai X., 1005
Baiano G., 365
Balo P. A., 785
Banerjee S., 987
Baraldi C., 901
Barnes R. K., 415
Barroso R. C., 717
Bastiano M., 901
Bateman S. N., 647
Battisti P., 387
Becker D. W., 449
Belanov S. V., 303
Belgya T., 527
Belli M., 115
Biagini R., 387
Bickel M., 5, 273, 279
Biévre P. D., 13
Blanco Rodríguez P., 337
Blasi M., 115
Block R. C., 535, 773
Blotin E., 101
Bocquet C., 145
Böhm J., 173
Boiano A., 365
Bonifazzi C., 571, 901
Booth T. E., 857
Börjesson J., 639
Bostrom T., 279
Boulkheir M., 887, 963
Bouvier C., 381
Bradley D. A., 633, 691, 793, 921, 937, 953
Brand P. J., 773
Braz D., 725
Briesmeister J. F., 857
Brockmann J., 421
Bruggeman M., 317
Bukh V. G., 825
Burger P., 101
Burr T. L., 547
Burte P. P., 981

Cagliyan O., 411
Calmet D., 145
Canet M. J. M., 225
Carchon R., 317
Carter L. L., 857
Casali F., 699
Casas M., 139
Casnati E., 901
Čechák T., 565
Cerdà V., 139
Chang J. H., 587
Chatterjee B. K., 759
Chettle D. R., 639, 647, 651, 657
Cheung T., 975
Cheung T. T. K., 975
Cheung Y. C., 427
Chew L. T., 633
Chiozzi P., 127, 215
Chong N. S., 463
Cincu C., 937
Coimbra M. M., 1011
Conde C. A. N., 739
Congedo T. V., 499
Coquenlorge N., 145
Correa E., 355
Cossonnet C., 381
Costa E. B., 665
Courti A., 101
Cox L. J., 857
Craciun G., 937
Crespo M. T., 91, 109
Crespo Vázquez M. T., 259
Cunha e Silva R. M., 1011

D'Onofrio A., 365
da Motta L. M. G., 725
Dahlan K. Z., 921
Dai S., 755
Das M., 759
das Neves J., 225
De Felice P., 127, 215, 221, 387
de Jesus E. F. O., 665, 717
de Lavison P., 243
Desmond J. A., 133
Devan K. R. S., 945, 949
Di Domenico G., 571, 907
Dietze G., 893
Diez J., 455
Dinse C., 381
dos Santos J. M. F., 739
Drews A., 431
Dryák P., 351
Du J., 443
Dulloo A. R., 499
Dunn W. L., 625

Earnhart J., 673
Economou T., 821
Edmondson C., 133
Efimov K .M., 303
Efimov V. N., 825
El Sayyed, 483
El-Sayyed E. S., 515
Emmett M. B., 863
Ermakov A. I., 303
Esaka F., 87
Espinoza-Quiñones F. R., 1011
Fageeha O., 439

PII: S0969-8043(01)00108-7

Fan Y., 1005
Favorite J. A., 857
Fazio A., 127, 387
Feilitzsch F. V., 231
Fernandez J. E., 901
Fernández-Diaz M., 91
Ferrari P., 387
Ferreira L. M., 867
Filimonov V. T., 825
Finantu E. G., 953
Fink D., 31
Firestone R. B., 527
Forster R. A., 857
Frankle S. C., 929
Franz M., 331
Funck E., 173

Gaca P., 251
Gäfvert T., 153
Gambarini G., 765
García-León M., 81
Garcias F., 139
Gardner R., 673
Gardner R. P., 483, 515, 603, 731, 837
Gascón Murillo J. L., 259
Gavrilov V. D., 821, 829, 833
Gerndt J., 565
Ghanem S. A., 877
Ghassoun J., 881
Gilliland D., 179
Girard M., 57
Glavič-Cindro D., 237
Gleisberg B., 203
Golovkin S. V., 699
Gómez E., 139
Gómez Escobar V., 337
Gonçalves O. D., 717
Gordeev J. N., 829
Goutelard F., 101, 145
Govorun V. N., 699
Gray T. K., 603
Gualdrini G., 387
Guan Z. J., 975
Gudjonsson G. I., 377
Guillén J., 455
Gupta A., 431
Gysemans M., 209

Håkansson A., 681
Hamilton T., 75
Hanzawa Y., 87
Harms A. V., 197
Hayden S., 483
Hebert D., 309
Hendricks J. S., 857
Hensel F., 617
Hentig R. V., 231
Hernndez S., 455
Herranz M., 39
Heusser G., 191, 371
Hill C., 5
Hill D. M., 415
Hiller J. M., 755
Hiltunen J., 443
Hirose K., 159
Ho A. C., 541
Ho R. T. K., 427
Holm E., 153
Holmberg A. R., 443
Holmes L., 5, 63
Hotchkis M., 31
Hubbard-Nelson B., 913
Hult M., 225
Hurtgen C., 45, 289
Husband L. J., 243
Hussein E. M. A., 541, 557

Ichaoui R., 887, 963
Igarashi Y., 159

Jackson P., 595
Jacobs K., 361
Jacobsson S., 681
Jamil M. M., 633
Jansson P., 681
Janzon C., 5
Jasińska M., 251
Jehouani A., 881, 887, 963
Jerome S. M., 243, 265
Jerome S., 45, 163
Jia G., 115
Johannsen B., 431
Johansen G. A., 595
Johnston P. N., 225

Kalla S. L., 793, 953
Karelin E. A., 829
Karelin Ye. A., 825, 833
Kashirin I. A., 303
Keightley J. D., 243
Kessler G., 811
Kidwai S., 439, 745
Kim Y.-K., 587
Klein M., 323
Knapp E. A., 711, 815
Knauer J. B., 785
Knepper P. L., 547
Köhler M., 197, 203, 225
Korchuganov B., 821
Korun M., 237
Koulouris G., 5, 279
Kovář P., 351
Krebs B., 331
Kubelík M., 565
Kudo K., 893
Kuznetsov R. A., 825

Laborie J.-M., 57
Laubenstein M., 191
Lawrie W. C., 133
Le Petit G., 57
Lebedev N. A., 421
Lebedev V. M., 825, 829
Lee C. H., 587
Lee J. S., 463
Lee S. H., 731
Lee Y.-D., 587
Legarda F., 39
Leong L. S., 1017
Lestone J., 673
Letessier P., 145
Leung K. N., 801
Li Q., 993
Lindahl P., 153
Livingston R. A., 773
Liu L., 837
Liu R. S., 463
Lo T. Y., 975
Lodi E., 571
Lopes R. T., 665, 717, 725
López-Gutiérrez J. M., 81
Lozano J. C., 91, 337
Luca A., 221
Luisa Botelho M., 867

Madigan W. P., 929
Magara M., 87
Maino G., 571
Majali M. A., 987
Majkowski I., 317
Malinovskiy S. V., 303
Manjón J. L., 455
Manohar S. B., 981
Marchesi P., 765
Marchetti A., 115
Marquez M., 443
Martin J. L., 455
Martin R. C., 785
Martin-Sánchez A., 91, 259
Mateescu E. N., 937, 953
Mateos J. J., 139
Mathakar A. R., 987
Mayo C. W., 483, 515
McIlwain M. E., 499
McKinney G. W., 857
McNeill F. E., 647, 651, 657
Męczyński W., 121
Metwally W. A., 515

Mietelski J. W., 121, 251
Miley G. H., 779
Miller L. F., 755
Misiak R., 421
Miyamoto Y., 87
Miyao T., 159
Modna D. K., 265
Moers S., 323
Mohd A. Y., 633
Moler R. B., 711
Molnár G. L., 527
Momayezi M., 913
Mondal R. K., 981
Monteiro C. M. B., 739
Moors H., 209
Moreno G., 455
Morgado R. E., 739
Moschel R., 449
Murty V. R. K., 945, 949
Musilek L., 565

Nagadi M. M., 439, 745
Nair A. G. C., 981
Naqvi A. A., 439, 745
Nava E., 765
Navarro N., 355
Navarro T., 345
Nazard R., 145
Neder H., 191
Neukäter E., 331
Neumaier S., 173
Ng K. H., 691
Ni J., 535
Niese S., 203
Nilsson S., 443
Nishimura H., 87
Novgorodov A. F., 421

O'Meara J. M., 639
Oliveira C., 867
Ozkilic H., 411

Palazzi P., 765
Pan S. M., 1017
Paniagua J. M., 455
Pant H. J., 999
Paridaens J., 361
Parreira P. S., 1011
Parry S., 163
Pasquale V., 127, 215
Pavan R. A., 449
Pavlik M., 565
Pecci A., 765
Pejović-Millić A., 647, 657
Pérez del Villar L., 91
Pietzsch H.-J., 431
Pilviö R., 5, 63, 273, 279
Poezart M., 515
Povinec P. P., 185
Prael R. E., 857
Prestwich W. V., 651
Prettyman T., 673
Przylibski T. A., 473
Pugliese M., 365

Quejido A. J., 91

Radchenko V. M., 821, 833
Rau W., 371
Reddy A. V. R., 981
Reddy L. K., 981
Reddy N. B. Y., 981
Reedy R. C., 929
Reher D. F. G., 13
Rehman K., 745
Révay Zs., 527
Revyakin Yu. L., 825
Riedel T., 231
Rieder R., 821
Robison W., 75
Robredo L. M., 345
Roca V., 365
Rong S., 993
Roos P., 153
Rosamilia S., 115
Rösch F., 421
Rosi G., 765
Rossi M., 699
Roy B., 759
Roy S. C., 759, 921
Rubio Montero M. P., 259
Ruddy F. H., 499
Rühle H., 449
Rühm W., 69
Ryabinin M. A., 821, 833

Sabbarese C., 365
Saleh H. H., 773
Salgado J., 867
Samuel G., 987
Sancho C., 355
Sansone U., 115
Sapozhnikov Yu. A., 303
Saunders A. W., 711
Schäfer I., 309
Schötzig U., 469
Schnabel Ch., 81
Schulze J., 23
Seidel J. G., 499
Seifert S., 431
Shimpi H. H., 987
Shirakawa Y., 581
Shvedunov V. I., 815
Sierra I., 345
Sima O., 51
Skulski W., 913
Slowikowski B., 5, 279
Sobolev A. I., 303
Sood A., 603
Spence D., 133
Spies H., 431
Spiridonov Ye. N., 825
Spry N., 163
Srivastava H. M., 793, 953
Steiner M., 69
Stronach I. M., 647
Stroosnijder M. F., 179
Sugita T., 893
Šuráň J., 351
Surbeck H., 97
Suter M., 81
Sved J., 779
Synal H.-A., 81

Tagami K., 69, 75
Takeda N., 893
Tanase G., 221
Tanner P. A., 1017
Tarasov V., 907
Tartari A., 571, 901
Theodorsson P., 297, 377
Tian J., 969
Tickner J., 507
Tikhomirov V. A., 303
Timus B. D., 793, 953
Timus D. M., 793, 937, 953
Tinti R., 765
Toporov Y., 907
Trower W. P., 711, 815
Tsai C. S., 463
Tuniz C., 31

Uchida S., 69, 75
Unak P., 411
Usuda S., 87

Vakhetov F., 907
Vanmarcke H., 361
Vera Tomé F., 337
Verbeke J. M., 801
Verdoya M., 127, 215
Verrezen F., 289
Vodenik B., 237
Vogt S., 31
Vojtyla P., 185
Vollaro P., 365
Vujic J., 801

Wallace S. A., 755
Waller E. J., 557
Wang C. K., 811
Wang Q. Z., 969
Wang X., 969
Wänke H., 821
Warburton W. K., 913
Watanabe K., 87
Wenxin Li, 993
Werzi R., 23
White M. A., 265
Winkoun D. P., 945, 949
Wirth E., 69
Wong C. S., 691
Wong H. K. Y., 415
Woodman A. P., 243
Woods D. H., 243
Woods M., 45
Woods M. J., 265
Woods S. A., 243
Wonicka U., 1023
Wu T. H., 463

Xiaodong Z., 993
Xu J., 1005
Xu X. G., 535

Yacout A. M., 625
Yang X., 893
Yasuda K., 87
Yin X. M., 969
Young P. G., 929
Yu C. P., 427
Yu K. N., 427, 975
Yu Z., 1017
Yurt F., 411

Zawadzki A. W., 415
Zeiske U., 309
Zeisler S. K., 449
Zhang X., 969
Zhemkov Yu. I., 825
Zheng Y., 483, 515
Zino J. F., 811
Zunic Z., 361

PERGAMON

Applied Radiation and Isotopes 55 (2001) XVII–XXXIII

Applied Radiation and Isotopes

www.elsevier.com/locate/apradiso

SUBJECT INDEX VOLUME 53

Accelerator
Continuous wave electron linear: development for food irradiation 815
Electron: use in PAA of sediments 535
Low energy for in vivo measurements of Al in bone: Monte Carlo design study 657
—Mass spectrometry
Use for analysis of environmental radionuclides: sensitivity, precision and standardization 31
Use to determine ^{129}I in rainwater 81
Actinides
Concentration in bones of wild herbivorous animals 251
Determination in power station effluents 163
In vivo measurements: development and characterisation of head calibration phantom 387
Measurements in urine: extraction procedure based on calixarene chemistry 381
Actinium
^{227}Ac: transfer from soil to plants 203
Actinoid
Detection and separation 5
Pre-concentration from water 279
Separations by extraction chromatography 273
Activation analysis
NA: use to determine zinc in GaAs 197
NAA : for in vivo measurements of Mn in brain: Monte Carlo simulation 651
New prompt gamma ray catalogue 527
K_o NAA: multielement analysis of emeralds and associated rocks 981
PGNAA
Assay of Hg,Cd and Pb in concrete 499
Determination of spatial response using a Monte Carlo based method 507
Devices: NaI detector activation 483
Use of coincidence counting approach to reduce background 515
Photon: of standard sediment for Ni and Pb concentration 535
Adsorption
Of technetium using activated carbon 153
Selective: preparation of thin films for U and Ra in food 97
Aircraft
Corrosion detection by X-ray back scatter methods 525
Alloy
W/Cu: effective atomic numbers using photon attenuation 945
Zircaloy-4: effect of Ar ion irradiation on electrochemical behaviour 1005
Alpha source
^{244}Cm for space research 821
Aluminium
^{26}Al: detection and measurement by acceleration mass spectrometry 31
Block: quantifying information from γ-ray Compton scatter non-destructive testing 541

PII: S0969-8043(01)00066-5

In vivo measurement in bone: Monte Carlo design study using a low energy accelerator beam 657

Americium
^{241}Am: concentration in bones of wild herbivorous animals 251
^{241}Am: migration in Boom clay samples 209
Detection and separation 5
In urine of workers involved in dismantling a nuclear power plant 345

Ammonium phosphomolybdate (AMP)
Uses in the separation of ^{137}Cs from sea water 159

Animal
Herbivorous: concentration of actinides in bone 251
Tumour bearing mice: excretion of biotracer elements 969

Anticompton system
Use for suppression of background in trace element studies 231

Apparatus
Multiparameter acquisition system for radon monitoring 365

Argon
Ion irradiation: effect on electrochemical behaviour of zircaloy-4 1005

Asphaltic mixture
Computed tomography to evaluate effect of adding polymer SBS 725

Atomic number
For W/Cu alloy using photon attenuation 945

Attenuation
Relationship with density of steelworks dust measurements of ^{137}Cs 39
Photon: use for estimation of effective atomic number for W/Cu alloy 945
Studies with a low energy photons and discrepancies in atomic photoeffect cross sections 945

Attenuation coefficient
γ-ray: two media method of measurement for archeological ceramic samples 1011

Background
Characteristics of low level HPGe detectors: Monte Carlo simulation 185
In PGNAA: reduction by coincidence counting 515
Suppression by an anticompton system 231

Barium
^{140}Ba detection in support of CTBTO 23

Beam
Accelerated ion: radiation fields generated 953
Electron: modification of properties of polyamide-6 by induced grafting 937
HANARO neutron: use for spatial distribution assay in fuel rods 587
Polarization measurements with ^{3}He and ^{2}H targets 439

Beryl
Multielement analysis by k_o NAA 981

Beryllium
^{10}Be: detection and measurement by accelerator mass spectrometry 31

Beta activity
Liquid scintillation counter using a single phototube detector 297
Low energy: determination in samples with HE impurities 673

Bone
Aluminium: Monte Carlo design study using a low energy accelerator beam 657
Lead: minimum detection limit and assessment of digital spectroscopy systems 647
Of herbivorous animals in NE Poland: actinide concentrations 251

Seeker: preparation and stability of ^{153}Sm-propylene diamine tetramethylene phosphonate 987
Boom clay samples
Determination of ^{75}Se, ^{95}Zr, ^{237}Np and ^{241}Am activities from migration experiments using γ-ray spectrometry 209
Boron
Content in clay in Miocene Carpathian rock: effect on neutron absorption cross section 1023
Boron neutron capture therapy
Discrimination of various contributions to absorbed dose 765
Brain
Manganese measurements by NAA based on Monte Carlo modelling 651
Bremsstrahlung
Energy spectrum of ^{90}Sr: use in determination 121
Monochromatic: use for computed tomography for analysis of elements 665
Building
Material, light weight concrete: ^{226}Ra,^{232} Th, ^{40}K contents and dose reduction assessments 975

Cadmium
Determination in concrete by PGNAA 499
Discrepancies in photoeffect cross sections in low energy photon region 945
Calcium
^{41}Ca: detection and measurement by accelerator mass spectrometry 31
Calibration
Efficiency curve for low level γ-spectrometry: Monte Carlo calculation 57
Standard: preparation for determination of ^{137}Cs in steel works dust 39
Californium
^{252}Cf neutron beam: enhancement via subcritical multiplication for NCT 811
^{252}Cf neutron source: production, distribution and applications 785
CALIXARENE(1,3,5-Trimethoxy-2,4,6-tricarboxy-p-tert butycalix-6-arene)
Use to purify actinides for measurements in urine 381
Camera
Compton imaging: simulation with a specific purpose Monte Carlo code 673
EBCCD: use in digital radiography 699
Carbon
Activated: use for adsorption of Tc 153
^{14}C: detection and measurement by accelerator mass spectrometry 31
Cement
Hydration: time of flight calibration of a ^{6}Li glass epithermal neutron detector 773
Ceramic
Archeological samples: two media method for γ-ray attenuation coefficient measurements 1011
Cesium
^{137}Cs
Low level measurements in deep sea water samples 159
Measurement in dust from steel scrap smelting 39
Uptake by fruit bodies of *Pleurotus eryngii* via mycelium, soil and aerial absorption 455
Channel
Irradiation in SM flux reactor: estimation of influence of loading on neutron flux 907
Chernobyl
Soil and plant samples: ^{99}Tc determination 69
Chlorine
^{36}Cl: detection and measurement by accelerator-mass spectrometry 31

Chromatography
Cation exchange: use in separation and determination of ^{226}Ra 133
Extraction
Use in determination of actinides and ^{90}Sr in power station effluent 163
Use in determination of ^{99}Tc 69
Use in pre-concentration of actinoids in water 279
Use in separation of actinoids 5,273
Clay
Mineral content: effect on neutron absorption cross section 1023
Code
FLUX SM for calculation of optional macroloading of the reactor channels 907
MCNP4C: present and future capabilities 857
MORSE: present and future capabilities 863
XCOM for theoretical mass attenuation coefficients 1011
Coherent scattering
Data for tissue in photon transport Monte Carlo codes 901
Coincidence summing
Corrections in low level γ-spectrometry
Accurate computation 51
Monte Carlo calculations 57
Comprehensive nuclear test ban (CTBT)
Low level radioactivity measurements and retention limits monitoring 23
Compton scattering
Measurements for analysis of large layer density 571
Non-destructive testing: quantification of data 541
Concrete
Light weight: ^{226}Ra, ^{232}Th, ^{40}K contents and dose assessment 975
PGNAA to determine Cd, Hg and Pb 499
Convergence acceleration
Of neutronic Monte Carlo calculations 897
Copper
Determination in teeth by induced argon plasma atomic emission spectroscopy (ICP-AES) 633
Corrosion
Detection in aircraft by X-ray back scatter methods 625
Determination by thin layer activation technique 179
Resistance of zircaloy-4: evaluation after Ar ion irradiation 1005
Counter
G-M: dead time model 731
Liquid scintillation Quantilus: use for low level tritium measurements 309
Low level scintillation scheme for weak β-emitters using a single phototube detector 297
Proportional for neutron measurement: Monte Carlo simulation of γ-ray response 893
Whole body: calibration by use of a head phantom for in vivo measurements of actinides 387
Counting
Coincidence: feasibility of use in PGNAA to reduce background 515
Liquid scintillation determination of low level components in complex mixtures of radionuclides 303
Liquid scintillation system for radon-in-water measurements 377
Liquid scintillation using a multiple window deconvolution technique for LE β-activity 289
Crystallizer
Draft tube baffle: flow rate measurement using a radioactive flow follower technique 999

Curium
^{244}Cm: use for a standard neutron source 833
^{248}Cm: use in α-proton-X-ray spectrometric complexes for space research 821

Data
ENDF (Evaluated nuclear data file) for photon production for radiative capture 929
Dating
Thermoluminescence: for research of ancient monuments and historic architecture 565
Dead time
Model for a G-M counter 731
Densitometry
Dual mode: use to measure gas volume fraction in oil/gas/water-pipe flows 595
Technique using positron radiation 617
Density
Correction factor in measurement of ^{137}Cs in steel works dust 39
Measurements of large layers by Compton scattering spectra 571
Detection limits
For potentially contaminated materials 351
Review of formulae derived from Currie and present methods 45
Detector
β–γ coincidence system for low level γ spectrometry 221
BOREXINO
^{222}Rn emanation measurements 371
Use in high sensitivity γ-ray spectroscopy 191
Use in ultra low level γ-spectrometry measurements at Mol, Belgium 225
HPGe
Energy linearity in the region of Ge k-absorption edge 739
Low level: Monte Carlo simulation of background characteristics 185
Well type in low level γ-spectrometry: use of Monte Carlo calculation to determine efficiency curve and coincidence summing corrections 57
^{6}Li glass epithermal neutron: time of flight calibration 773
Multiparameter acquisition system for radon monitoring 365
NE213: performance comparison for moisture measurements 745
PIPS: use to determine ^{90}Sr in the environment 101
Signal: digital pulse processing in nuclear spectroscopy 913
NaI: activation spectra for PGNAA applications 483
NaI: Monte Carlo calculations of the response features 877
NaI(Tl): efficiency by Monte Carlo method 887
Systems with large plastic scintillators: assessment for checking potentially contaminated materials 351
Determination limits
Review of Currie's formulae and present methods 45
Dextran
Radiolabelling with ^{188}Re 443
Dose
Absorbed: in a ferrous sulphate gel phantom 765
Equivalent to working staff using ^{15}O-water for PET studies 463
Planning system used in gamma knife surgery 427
Reduction due to ^{226}Ra, ^{232}Th and ^{40}K in light weight concrete 975
Dosimeter
Neutron: using super heated liquid 759

Dosimetry
Dose planning system used in Leskill Gamma knife model B: EGS4 Monte Carlo versus Gafchromic films MD55 427
Irradiation process planning using Monte Carlo studies 867
Measurement of internal exposure of workers during decommissioning of a nuclear power plant 345
PTB underground laboratory for low levels 173
Retrospective radon assessment by means of ^{210}Po activity 361
D-T fusion reaction
Application to development of neutron generator 801
Duct
Study of thermal neutron streaming: effect of length and radius 963

Effluent
Power station: determination of actinides and ^{90}Sr using extraction chromatography 163
Electron
Beam grafting: use to modify properties of polyamide-6 937
—Bombarded charged coupled devices: use in digital radiography 699
Emerald
Multielement analysis by k_o NAA 981
Energy linearity
Of HPGe detectors in the region of the Ge k-absorption edge 739
Environment
Determination of
^{210}Pb and ^{210}Po 115
^{90}Sr 145
^{90}Sr by β -spectrometer using PIPS technology 101
Use and standardisation of ^{229}Th as a yield tracer 243
Error
Measurement: effect in predictor variables in non-destructive assay 547
Evaluated nuclear data file
Photon production data 929
Excretion
Urinary and faecal of biotrace elements in cancerous mice 969
Explosive
Direct imaging 711

Faeces
Excretion of biotrace elements in cancerous mice 969
Film
Gafchromic MD55 versus EGS-4 Monte Carlo in dose planning in Gamma knife radio-surgery 427
Thin: use for sample preparation for α-spectrometry of traces of U and Ra in food 97
Flow
Oil/gas/ water pipe: salinity independent measurement of gas volume fraction 595
Rate measurements in a draft tube baffle crystallizer using a radioactive flow follower technique 999
Fluoride
^{18}F labelled: production from a water cooled Nb target 449
Food
Irradiation by a continuous wave linear electron accelerator 815

Use of thin films in sample preparation for α-spectrometric determination of U and Ra 97
Free release
Measurements for materials out of controlled areas 331
Of nuclear reactor dismantling wastes 317
Procedure for dismantled materials of the BR3 reactor, Belgium 323
Fuel
Rod: spatial distribution of nuclear materials using HANARO neutron beam 587
Spent nuclear: tomographic method for experimental verification 681
Uraninite spent: determination of uranium isotope ratio by TIMS and α-spectrometry 91
Fungi
Pleurotos eryngii fruit bodies: uptake of ^{137}Cs and ^{85}Sr 455

Gadolinium
Content in clay: effect on neutron absorption cross sections 1023
^{153} Gd line sources: preparation 829
^{153}Gd: production in thre BOR-60 fast flux reactor 825
Gallium
Arsenide: determination of Zn by NAA 197
Gamma knife
Comparison of dose planning systems: EGS-4 Monte Carlo and Gafchromic films MD55 427
Gamma ray
Attenuation coefficient measurements of archeological ceramic samples 1011
Portugese irradiation facility: Monte Carlo studies for process planning 867
Prompt: catalogue for PGAA 527
Response functions for a proportional counter: Monte Carlo simulation 893
Transmission through steel plates: use as a thickness gauge 581
Gas
Volume fraction in gas/oil/water pipe flow: measurement by dual mode densitometry 595
Gauge
Neutron: determination of spatial response using a Monte Carlo method 507
Thickness: for steel plates with build-up treatment 581
Generator
Sealed accelerator tube neutron: development 801
Geophysics
Thermal neutron absorption and effect of clay mineral content 1023
Germanium
Detector: use in determining coincidence summing correction in low level α-spectrometry 51
GESPECOR (germanium spectrometry correction factor)
Software: use for computation of coincidence summing correction in low level γ-spectrometry 51
Glass
Lithiated detector: efficiency for detection of moisture in cement 773
Lithiated sol–gel: use in neutron detection 745

Half life
Of ^{55}Fe 469

Images
Evaluation of quality produced by soft X-ray units 691
Imaging
Biomedical: use of angle dispersive diffraction with synchrotron radiation 717

Compton camera: simulation with a specific purpose Monte Carlo code 673
EBCCD device: use in digital radiography 699
Fricke –gel: discrimination of various contributions tom absorbed dose in BCNT 765
Of explosives 711
Indium
Discrepancies in photoeffect cross sections in low photon energy region 945
Inertial electrostatic confinement plasma device
Use as a fusion neutron source 779
Intercomparison
Of thorium measurements in the workplace 265
Iodine
^{129}I
Detection and measurement by accelerator mass spectrometry 31
Determination in rain water by accelerator mass spectrometry 81
Ion
Ar irradiation: effect on electrochemical behaviour of zircaloy-4 1005
Ion exchange
Use in determination of ^{226}Ra in environmental and personal monitoring samples 133
Use in pre-concentration of actinoids in water samples 279
Iron
In sediment cores from Hong Kong harbour: Mössbauer study 1017
^{55}Fe: half life and X-ray emission probabilities 469
Irradiation
Argon ion: effect on electrochemical behaviour of zircaloy-4 1005
Of foodstuffs using CW LINAC 815
Process planning: Monte Carlo studies 867
IRRMA (Industrial radiation and radioisotope measurement applications)
Monte Carlo simulations 837
Proceedings of the 4th Topical Meeting,1999 No. 4/5

K-absorption edge
For Ge energy linearity in detectors 739
Kidney
Mercury monitoring by in vivo XRF 639

Laboratory
Underground: for low level dosimetry and γ -spectrometry 173
Underground (HADES) at Mol, Belgium : use for ultra low level γ-spectrometry 225
Landmine
Detection: use of radiation methods 557
Layer
Density: determination by principal component analysis and Compton scattering 571
Lead
Determination in teeth by induced coupled argon plasma atomic emission spectroscopy 633
In concrete by PGNAA 499
Interference in low level ^{90}Sr determination in environmental samples 145
^{210}Pb
Determination at very low levels by γ-spectrometry 225
Determination in environmental samples 115
In sediment cores from Hong Kong harbour: Mössbauer studies 1017

Transfer to plants from soil 203
Measurement in bone: appraisal of digital spectroscopy systems 647
Liquid
Super-heated: use in neutron dosimetrry 759
Lutetium
^{177}Lu:radiochemical separation when produced by the ^{176}Yb(n,γ)^{177}Yb → ^{177}Lu process 421

Manganese
In brain: Monte Carlo simulation for measurement by NAA 651
Oxides: use for pre-concentration of actinoids from water 279

Material
Dismantling from nuclear power plants: free release measurements 331
Environmental and workplace: determination of ^{232}Th by ICP-MS 63
Radioactivity contaminated: checking and assessment of measuring instruments 351

Mercury
Determination in concrete by PGNAA 499
In kidney: determination by XRF 639
Metrology
Low level techniques: ICRM conference, Mol 1999 3
Radionuclide and traceability chains 13
Moisture
Measurement: comparison of NE213 detectors 745
Monte Carlo
Based method for determination of spatial response of neutron based analysers 507
Calculation for response features for NaI detectors 877
Calculation of efficiency calibration curve and coincidence summing correlations in low level γ-spectrometry 57
Calculation to investigate enhancement of a ^{252}Cf neutron beam for NCT 811
Code
For coherent scattering data for photon transport in tissue 901
MCNP4C: present and future capabilities 857
MORSE: present and future capabilities 863
Design study using a low energy accelerator beam for in vivo bone aluminium 657
EGS4 system versus Gafchromic MD55 films in dose planning in gamma knife radio-surgery 427
Method: study of NaI(Tl) efficiency 887
Model for neutron absorption and scattering cross section of geological samples 603
Modelling for measurement of manganese in brain by NAA 651
Neutronic calculations: convergence acceleration 897
Resonant absorption calculations: efficiency 881
Simulation
For industrial radiation and radioisotope measurement applications 837
Of a Compton scattered photon spectra for large layers 571
Of background characteristics for low level HPGe detectors 185
Of Compton camera imaging 673
Of γ-ray response functions for a proportional couter for neutron measurement 893
Results for estimation of channel loading on neutron flux 907
Studies for irradiation process planning 867

Monument
Ancient: use of radiation methods in research 565

Mössbauer
Study of sediment cores from Hong Kong harbour 1017

Neptunium
^{237}Np: migration in Boom Clay samples 209
Neutron
^{252}Cf sources: production, distribution and applications 785
Capture theory: subcritical multiplication of a ^{252}Cf neutron beam 811
Detection based upon a lithiated sol–gel glass 755
Dosimeter using a super-heated liquid 759
Flux density: Monte Carlo simulation model for estimation of the effect of channel loading 907
Gauge: spatial response determination using a Monte Carlo method 507
Generator: use in detection of landmines 557
Generated by witch-type distributed axi-symmetrical deuteron beams: energy behaviour 793
IEC star mode fusion source for NAA: status and design 779
^{6}Li-glass epithermal detector: time of flight calibration 773
Preparation of a standard source using ^{248}Cm 833
Radiography at HANRO to determine spatial distribution of nuclear materials in fuel rods 587
Resonance escape probability: Russian roulette efficiency in Monte Carlo calculations 881
Sealed accelerator tube generator: development 801
Slowing down: Monte Carlo calculations 897
Source for measurement of scattering cross section in geological samples 603
Thermal: absorption cross section for Miocene Carpathian samples 1023
Thermal streaming through a straight duct: flux study 963
Non-destructive assay
Effect of measurement error in predictor variables 547
Nuclear facility see also plant, nuclear power
Decommissioning: uranium determination in samples 355
Nylon
Trace element determination using an anti-Compton spectrometer 231

Ornidazole
^{131}I labelled: inflammation detection and accumulation in abcesses 411

Palladium
Discrepancies in photoeffect cross sections in the low photon energy region 945
PET
Investigation for use for density measurements 617
Studies with ^{15}O-water: dose to working staff 463
Phantom
Ferrous sulphate gel: various contributions to absorbed dose in BNCT 765
Head: calibration for in vivo measurement of actinoid 387
Phosphorus
^{32,33}P: production in the BOR-60 fast flux reactor 825
Photons
Attenuation studies for estimation of effective atomic numbers for W/Cu alloys 945
Low energy: attenuation studies and atomic photoeffect cross sections 949
Production data for radiative capture in ENDF (evaluated nuclear data file) 929
Transport in tissue: Monte Carlo codes for coherent scattering data 901
Use in detection of landmines 557

Plant
Nuclear power decommissioning: indirect monitoring of internal exposure in personnel 345
Sample collected around Chernobyl: ^{99}Tc determination by ICP-MS 69
Tomato: transfer of primordial radionuclides from soil 203
Plutonium
Analysis in soil samples 259
In urine of workers involved in dismantling nuclear power plants 345
^{239}Pu interference in PGNAA detection sensitivity in mixed waste 499
^{239}Pu and ^{240}Pu: concentration in bones of herbivorous animals 251
Ultra trace amounts in enviromnmental samples by ICP-MS 87
Polonium
^{210}Po
Activity measurement for retrospective radon assessment 361
Determination in environmental samples 115
Polyamide-6
Modification of properties by electron beam induced grafting 937
Polymer
SBS in asphaltic mixtures used in paving: evaluation by CT 725
Positron
Radiation: use for density measurements 617
Potassium
Determination in rock and soil samples by γ-spectrometry 127
Determination in rock using a portable γ-spectrometer 215
^{40}K in concrete: content and dose reduction assessment 975
^{40}K transfer from soil to plants 203
Principal component analysis
Of large layer density in Compton scattering measurements 571
Propeller
Design in a draft tube baffle crystallizer: studies of flow rate 999
Propylene diamine tetramethylene phosphonate (PDTMP)
Preparation and complexing with ^{153}Sm for use as a bone seeker 987
Pulse
Digital processing in nuclear spectroscopy 913

Quality
Of automated γ-ray spectrometer analysis 237
QUANTALUS
Liquid scintillation counter 309

Radiation field
Generation by hollow cylindrical ion beams 953
Radioactive flow follower
Use in flow rate measurements in a draft tube baffle crystallizer 999
Radioactivity
Low level detection and measurement in support of CTBT 23
Naturally occurring: assessment by γ-spectrometry 126
Radiochemistry
Importance in analysis and separation: review 5
Radiography
Digital: using an EBCCD-based imaging device 699
Neutron: to determine spatial distribution of nuclear materials in fuel rods 587

Radionuclide
Detection and determination limits: review of Currie's formulae and present methods 45
Environmental: analysis by AMS 31
Metrology: ICRM conference Mol, Belgium 1999 3
Metrology of radionuclides and traceability chains 13
Primordial: soil–plant transfer in tomatos 203
Production: using a fast flux reactor 825
Use in determination of wear and corrosion by the TLA technique 179
Radiopharmaceutical
^{188}Re labelled dextran: preparation 443
^{99m}Tc(III) complexes with tridentate/monodentate thiol ligands and phosphine: stability studies 431
Radiosurgery
By Gamma knife: comparison of dose planning systems 427
Radium
^{225}Ra: use as a yield tracer in determination of ^{226}Ra by α-spectrometry 109
^{226}Ra
Determination by α-spectrometry using ^{225}Ra as a yield tracer 109
Determination in environmental samples and personal monitoring samples 133
In concrete: content and dose reduction assessment 975
In food: α-spectometry sample preparation using selectively adsorbing thin films 97
In soils, sediments and water in an inactive uranium mine 337
Transfer from soil to plant 203
Radon
Acquisition system for concentration studies 365
Estimation of emanation coefficient from crystalline rock into groundwater 473
^{222}Rn
Emanation measurements at extremely low levels 371
In air and water in an inactive uranium mine 337
In water: measurement by a low level liquid scintillation system 377
Reduction of dose in light weight concrete 975
Retrospective assessment from ^{210}Po activity measurements 361
Reactor
BR3 Belgium: the free release procedure for dismantled materials 323
Fast flux: for production of radionuclides 825
Natural nuclear: determination of uranium isotope ratios in uraninite spent fuel 91
Nuclear power decommissioning: monitoring of internal exposure of workers 345
Release measurements for materials out of controlled areas 331
SM: estimation of neutron flux density on any channel 907
Resin
Sr-spec®: use for isolation of ^{90}Sr from environmental samples 145
Rhenium
^{188}Re labelling of dextran 443
^{188}Re-AEDP: preparation and biodistribution 993
Rock
Associated with emerald: multielement analysis by k_o NAA 981
Crystalline: radon emanation into groundwater 473
Determination of K, U and Th using a portable γ-ray spectrometer 215
Determination of ^{232}Th by ICP-MS 63
γ-spectrometric assessment of naturally occurring radioactivity 126

Miocene Carpathian: relation between thermal neutron absorption cross section and clay mineral content 1023

Salinity
Independent measurement of gas volume fraction in oil/gas/water pipe flows 595
Samarium
^{153}Sm–propylene diamine tetramethylene phosphonate(PDTMP) complex: preparation and stability for use as a bone seeker 987

Sample
Archeological ceramic: γ-ray attenuation coefficient measurements 1011
Environmental
^{210}Pb and ^{210}Po determination 115
^{90}Sr determination 145
Ultra trace amounts of nuclides: determination by ICP-MS 87
Environmental and geological: ^{226}Ra determination by α-spectrometry 109
Geological: determination of neutron absorption and scattering cross section 603
Low energy β-activity: determination using a multiple window deconvolution technique 289
Miocene Carpathian rock: relation between neutron absorption cross section and clay mineral content 1023
Preparation for α-spectrometry using thin films 97
Weak β-emitting: multisample scintillation system 297

Sea
Water samples: low level ^{137}Cs measurements 159
Sediment
Core from Hong Kong harbour: Mössbauer study 1017
Determination of ^{232}Th by KP-MS 63
In an inactive uranium mine: ^{226}Ra content 337
Standard SRM1646a: photon activation analysis for Ni and Pb 535
Selenium
^{75}Se: determination of migration in Boom clay using γ-ray spectrometry 209
Silicon
Discs with ^{244}Cm fixed on their sureface for use as α-source in space research 821
Silicone
Irradiated: measurement of viscosity using a differential viscometer 921
Software
GESPECOR: use for computation of coincidence summing correction in low level γ-spectrometry 51
Spectradec: use for determination of low level components in complex mixtures of radionuclides 303
Soil
Determination of 259
Pu 259
^{99}Tc content around the Chernobyl reactor by KP-MS 69
^{99}Tc content in the Marshall islands 75
^{232}Th by KP-MS 63
γ-spectrometric assessment of naturally occurring radioactivity 126
In an inactive uranium mine: ^{226}Ra content 337
—Plant transfer of primordial radionuclides in tomatos 203
Sol–gel technology
Use in doping lithiated glass for use in neutron detection 745

Sorbent
Comparison for pre-concentration of actinoids from water samples 279
Source
Neutron : for measurement of absorption and scattering cross section in geological samples 603
Photon line: preparation 829
Radioactive contaminated materials: checking and assessment of measuring instruments 351
Standard neutron: preparation with ^{248}Cm 833
Space research
Development of ^{244}Cm α-sources 821
SPECT (Single photon emission computed tomography)
Application to spent nuclear fuel for verification of configuration of rods 681
SPECTRA DEC
Software for decoding simultaneous activity measurements of complex radionuclide mixtures 303
Spectra
Compton scattering: use to determine layer density 571
Decoding in simultaneous determination of low level components in complex mixtures 303
Gamma ray: catalogue for elements 527
NaI detector neutron activation: PG emissions 483
Spectrometer
Anticompton system 231
β-: development using PIPS technology for ^{90}Sr in the environment 101
γ-: use to determine ^{90}Sr 121
γ-ray field: problems and calibration for use in geological surveys 215
Low level γ-ray germanium: use to measure very low radionuclide concentrations 191
NaI(Tl) γ-ray: for assessment of naturally occurring radionuclides in rocks and soil 126
Spectrometry
Accelerator mass(AMS): use in analysis of environmental radionuclides — sensitivity, precision and standardization 31
Alpha
Low level: use in defining limits of detection and determination 45
Sample preparation using adsorbing thin films 97
Use to determine ^{226}Ra 133
Use to determine ^{226}Ra in environmental and geological samples 109
Use to determine uranium isotope data in spent fuel 91
β–γ: use for detection of nuclear explosions 23
Gamma ray
Automated analysis: quality assurance 237
Low level by β–γ coincidence 221
Low level: computation of coincidence summing corrections 51
PTB underground laboratory 173
Ultra low level: recent developments at Mol, Belgium 225
Use in determination of migration of radionuclides in Boom Clay 209
Use in multielement analysis of emerald and associated rocks 981
Use to determine ^{90}Sr 121
Use to investigate soil-plant transfer of primordial radionuclides 203
ICP-MS
Development of techniques for ultra trace amounts on nuclides in environmental samples 87
Use for quantification of Tc in generator derived pertechnetate 413
Use to determine ^{99}Tc in Marshall islands soil 75
Use to determine ^{99}Tc in soil and plants around Chernobyl 69
Use to determine ^{232}Th in environmental and workplace materials 63

Liquid scintillation: use to determine low energy β-activity in samples contaminated with high energy impurities 289
TIMS (Thermal ionisation-MS): use to determine uranium isotopic data in spent fuel 91
Spectroscopy
Digital pulse processing of detector signals 913
Digital systems: appraisal for measurement of lead in bone 647
ICP-AES: use to determine Zn, Pb and Cu in teeth 633
Standards
Comparison values in metrology and importance in traceability chains 13
Steel
Scrap and smelting dust: measurement of ^{137}Cs content 39
Steel plate
Build-up treatment for thickness gauging based on γ-ray transmission 581
Strontium
^{85}Sr: uptake by fruit bodies of *Pleurotus eryngii* via mycelium, soil and aerial absorption 455
^{89}Sr production in BOR-60 fast flux reactor 825
^{90}Sr
Determination by γ-ray spectrometer 121
Determination in environmental samples 145
Determination in the environment by β-spectrometry 101
Determination in mineral material 139
Determination in power station effluent 163
Sulphur
^{35}S: production in the BOR-60 fast flux reactor 825
Synchrotron
Radiation: use of angle dispersive diffraction in biomedical imaging 717

Tantalum
Discrepancies in photoeffect cross sections in low photon energy region 945
Foil: use in preparation of ^{3}He and ^{2}H targets 439
Target
^{3}He and ^{2}H fabrication for beam polarization measurement 439
Nb, water cooled for production of [^{18}F] fluoride 449
Plane, tritium bombarded by axi-symmetrical deutron beams: energy behaviour of neutrons 793
Plasma: fusion reactions 779
Technetium
In situ sorption using activated carbon 153
^{99}Tc
Measurement in Marshall islands soil by ICP-MS 75
Separation from soil and plant samples collected around Chernobyl and determination by ICP-MS 69
^{99m}Tc ratios in generator derived pertechnetate: measurement by ICP-MS 413
^{99m}Tc (III) complexes with tridentate/monodentate thiol ligands and phosphine: stability studies 431
Teeth
Zn, Pb and Cu determination by induced coupled argon plasma atomic emission spectroscopy 633
Thickness
Of steel plates: measurement by γ-ray transmission 581
Thin layer activation technique
Use for determination of wear and corrosion 179

Thorium
Detection and separation 5
Determination in environmental and workplace materials by ICP-MS 63
Determination in rock and soil samples by γ-spectrometry 126
Determination in rock using a portable γ-spectrometer 215
In bones of wild herbivorous animals 251
Measurement in the workplace: intercomparison 265
^{229}Th: standardisation as an environmental yield tracer 243
^{232}Th in concrete: content and dose reduction assessment 975
^{238}Th: removal from Pu in soil samples 259
Tin
^{117m}Sn: production in the BOR-60 fast flux reactor 825
Tissue
Monte Carlo codes for coherent scattering in photon transport 901
Titanium
Foil: use in preparation of ^{3}He and ^{2}H targets 439
Tomato
Transfer of primordial radionuclides from soil 203
Tomography
Computed: use to evaluate the effect of adding polymer SBS to asphalt mixtures 725
Computed: with monochromatic bremsstrahlung radiation 665
Method for verification of integrity of spent nuclear fuel 681
Trace element
Concentration in nylon: measurement by an anticompton spectrometer 231
Multitracer technique: excretion in tumour bearing mice 969
Traceability chain
In measurements of radioactivity and amount of substance 13
Trans chelation
In ^{188}Re labelling of thiol dextran 443
Tritium
Low level measurements with LSC Quantulis 309
Turpentine
Use in creating in vivo inflammation for ^{131}I-ornidazole studies 411

Uraninite
Determination of uranium isotope ratios by TIMS and α-spectrometry 91
Uranium
Determination in food: sample preparation for α-spectrometry using thin films 97
Determination in rock and soil samples by γ-spectrometry 126
Determination in rock using a portable γ-spectrometer 215
Determination in samples from decommissioning of nuclear facilities 355
Inactive mine: radiological characterisation 337
Isotope ratios in uraninite spent fuel 91
Ultra trace amounts in environmental samples by ICP-MS 87
^{238}U transfer from soil to plant 203
^{238}U and ^{235}U: interference in PGNAA detection sensitivity 499
Urine
Actinide measurements based on calixarene extraction 381
Am and Pu assay for workers involved in dismantling a nuclear power plant 345
Excretion of biotrace elements in tumour bearing mice 969

Viscometer
Differential: use to measure viscosity of irradiated silicone 921

Waste
Dismantling: non-destructive assay 317
Materials out of controlled areas: release measurements 331
Mixed: interference of ^{238}U, ^{235}U and ^{237}Pu in PGNAA detection sensitivity 499
Radioactive materials from BR3 reactor Belgium: free release procedures 323
Water
Actinoid pre-concentration : comparison of various sorbents 279
Determination of $^{90}Sr/^{90}Y$ using a sequential injection method 139
^{15}O labelled: dose to staff working in PET studies 463
^{222}Rn and ^{226}Ra in an inactive uranium mine 337
^{222}Rn concentration: measurement by a compact LSC system 377
Radon emanation from crystalline rock into ground water 473
Rain: determination of ^{129}I by accelerator-MS 81
Sea: determination of low level ^{137}Cs 159
Wear
Determination by thin layer activation technique 179
Workplace
Material: determination of ^{232}Th by ICP-MS 63
Thorium concentrations: intercomparison 265

Xenon
^{133}Xe detection in support of CTBTO 23
X-ray
Back scatter methods: corrosion detection in aircraft 625
Diffraction using synchrotron radiation: use in biomedical imaging 717
Emission probabilities of ^{55}Fe 469
Soft: image quality 691
XRF
Analysis: use for research of ancient monuments and historic architecture 565
For measurement of bone lead: detection limits 647
In vivo measurements of Hg in kidney 639

Yttrium
^{90}Y determination in mineral water 139

Zinc
Determination in GaAs by NAA 197
Determination in teeth by induced coupled argon plasma atomic emission spectroscopy 633
Zircaloy-4
Effect of Ar ion irradiation on electrochemical behaviour 1005
Zirconium
Discrepancy in photoeffect cross sections in low photon energy region 945
^{95}Zr: determination of migration in Boom clay 209